

Title: What is the future of minimally invasive sinus surgery: computer assisted navigation, 3D-surgical planner or augmented reality in the operating room with contactless 'in the air' surgeon's commands?

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Abstract: The use of modern technologies in head and neck surgery in the last 30 years (e.g., FESS, NESS, and robotic surgery) has enabled surgeons to demonstrate spatial anatomic elements[6] in the operating field, which was quite inconceivable before. Simultaneous use of video image, 3D-forms of anatomic fields, navigation in space[7,8], and since recently the use of robots in surgery certainly provides higher intraoperative safety and reduces operating time[2], as well as the length of patient postoperative recovery. In this work, we were focused on development of personal-3D-navigation system and application of augmented reality[3,4,5] in the operating room, management of image 2D-3D-video-medical documentation (virtual endoscopy), and control marker-based virtual reality[1] simulation in real time during real operation with *per viam* contactless 'in the air'[9,10] (http://www.poliklinika-klapan.com/en/what-future-minimally-invasive-surgery-rhinology-marker-based-virtual-reality-simulation-touch-free) surgeon's commands. This approach has not yet been used in rhinosinusology or otorhinolaryngology, and to our knowledge, not even in general surgery (http://www.poliklinika-klapan.com/en/image-gallery).

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Virtual Reality in Medicine[(1)]2011
Otolaryngol H&N Surgery[(6,7,8)]2002/2003/2005
Ear Nose Throat J[(2,3)]2006/2016
Coll Antropol[(4,5)]2008/2015
IL J Otolaryngology Rhinology[9] 2017
Frontiers in Otolaryngology-Head and Neck Surgery[10] 2017

Biography

Professor Klapan graduated from Zagreb University School of Medicine. He has completed two postdoctoral studies from the same University (Clinical Immunology&Allergology, Otorhinolaryngology-Head&Neck Surgery) and his PHD (Zagreb University School of Medicine, and Eye&Ear Institute, Department of Otorhinolaryngology-H&N Surgery, and Pittsburgh Cancer Institute, University of Pittsburgh, PA, USA) at the age of 30 years. He is the founder/director of Klapan Medical Group University Polyclinic. He has published more than 110 papers in reputed journals; citations/>450; h-index: >25; 14 medical books (7/Croatian and 7/English language; editor, author and co-autor); chaired and headed a number of international surgical courses and symposia (>300 lectures; invited lecturer/moderator/president/ USA/EU/Asia/Australia; www.poliklinika-klapan.com).

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